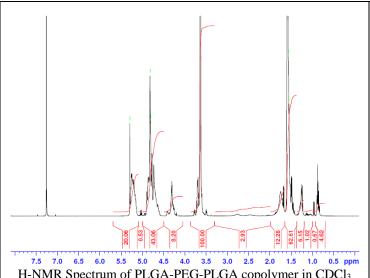
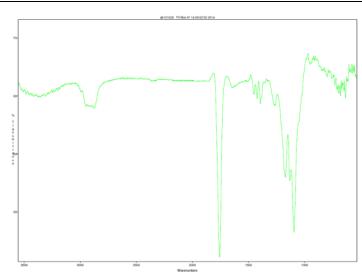
No. AK12 Certificate of Analysis



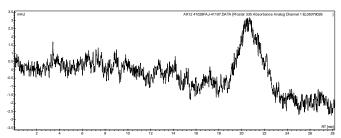
Product Name: Poly(lactic-co-glycolic acid)-*b*-Poly(ethylene glycol)-*b*-Poly(lactic-co-glycolic acid) copolymers (M_n 1,000:1,000:1,000 Da) (Lot# 41029FAJ)



H-NMR Spectrum of PLGA-PEG-PLGA copolymer in CDCl₃ (Varian Inova 500 MHz instrument), M_n NMR of PLGA copolymers:EG-LA/GA: 1,074-1,409/1,219 (24-20/21), LA/GA ratio: 54%/46%



FTIR Analysis: Collected from cast-film on salt-plate placed in Satellite FTIR (Thermo-Mattson) and analyzed in transmission mode.

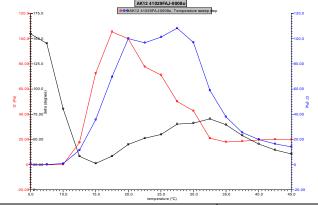


GPC Analysis Method: Varian Prostar system with 1 ml/min DCM flow across two Phenogel 5 µm columns and one Resipore column (Agilent). Detection via UV/Vis, calibrated against polystyrene standards.

Polymer	M _n (GPC)	Mw (GPC)	PDI
PLGA-PEG-PLGA	5,385	8,305	1.54
PEG precursor*	1,118	1,142	1.02

^{*}calibrated against PEG standards.

Rheology performed on AR550 (TA instruments) with 60mm 2degree cone on 20% w/v polymer in water dissolved overnight with stirring at 4°C. Viscosity of solution at 0.1 (sec⁻¹) and 5°C was measured (1minute peak hold 5 second test intervals). Rheology performed by oscillating at constant 6.283 rad/s, 0.1% strain, in increments of 2.5°C ranging from 5-45°C with 3 minutes of temperature equilibration at each point.



Viscosity 20% w/v solution at 5°C | 0.1557 Pa.s

Structure of PLGA-PEG-PLGA copolymer

$$+O - \underbrace{\begin{pmatrix} CH_3 & O \\ CH - C - O \end{pmatrix}}_{LA} \underbrace{\begin{pmatrix} CH_2 - C - O \\ GA \end{pmatrix}}_{GA} \underbrace{\begin{pmatrix} CH_2 CH_2 O \\ C \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - C - O \\ CH_3 \end{pmatrix}}_{CH_3}$$

Material provided for research use only. Not for human use.